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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,839	03/16/2001	Ronald N. Perry		7082

7590 12/19/2002  
Patent Department  
Mitsubishi Electric Research Laboratories, Inc.  
201 Broadway  
Cambridge, MA 02139

EXAMINER

WALLACE, SCOTT A

ART UNIT PAPER NUMBER

2671

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/810,839

Applicant(s)

PERRY ET AL.

Examiner

Scott Wallace

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Bern et al., U.S. Patent No. 6,384,826 B1.

3. As per claim 1, Bern et al discloses a method for converting an adaptively sampled distance field of a graphics model to a triangle model (column 2 lines 15-33), the adaptively sampled distance field including a plurality of surface cells storing distance values having corresponding gradients (column 2 lines 15-33), comprising: assigning a vertex to a center location of each surface cell (fig 2); connecting the vertices of neighboring surface cells to form triangles while satisfying a predetermined constraint (fig 5); moving each vertex, in a single step, to a new location according to the distance value and corresponding gradient of the vertex to substantially conform the triangles to a surface of the model (column 8 lines 15-30).

4. As per claim 2, Bern et al discloses wherein each surface cell has edges connecting corners of the cells, and some neighboring surface cells have common edges (column 6 lines 5-22) and the predetermined constraint further comprises: only connecting vertices in three neighboring surface cells

having common edges, and at least one common edge intersects the surface of the graphics model (column 6 lines 5-22).

5. As per claim 3, Bern et al discloses deriving an orientation for each triangle from an orientation of the at least one common edge intersecting the surface (column 19-30).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bern et al. in view of Assa et al., U.S. Patent No. 6,313,837 B1.

8. As per claim 4, Bern et al does not specifically disclose considering less than all common edges of a particular surface cell when connecting the vertices. However, Assa et al discloses this in fig 20a and b. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the way of connecting vertices of Assa et al with the system of Bern et al because this optimizes the use of the grid(cell) structure (column 12 lines 1-15).

9. As per claim 5, Assa et al discloses wherein the considered edges connect to two diagonally opposing corners of the surface cell (column 12 lines 1-15 and figs 20a and b).

10. As per claim 6, Assa et al discloses wherein the adaptively sampled distance field includes a root surface cell, intermediate surface cells, and leaf surface cells arranged in layers of a hierarchical tree, and wherein vertices are assigned only to leaf cells (column 2 lines 10-60 and column 21 lines 1-10).

11. As per claim 7, Assa et al discloses wherein the adaptively sampled distance field includes a root surface cell, intermediate surface cells, and leaf surface cells arranged in layers of a hierarchical tree, and

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wherein vertices are assigned to all surface cells up to a predetermined level in the hierarchical tree (column 2 lines 10-60 and column 21 lines 1-10).

12. As per claim 8, Assa et al discloses wherein the adaptively sampled distance field includes a root surface cell, intermediate surface cells, and leaf surface cells arranged in layers of a hierarchical tree, and each cell has an associated error measure, and the vertices are assigned to cells having a particular error measure less than a predetermined threshold (column 2 lines 10-60 and column 21 lines 1-10).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Scott Wallace** whose telephone number is **703-605-5163**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at 703-305-9798.

**Any response to this action should be mailed to:**


Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
**MARK ZIMMERMAN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**

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